

Lat 39.60879 Lon -120.18169

**Lassen
National
Forest**

**55 So. Sacramento St.
Susanville, CA 96130
(530) 257-2151 Voice
(530) 257-6244 TTY
(530) 252-6428 Fax**

File Code: 3400

Date: November 5,1999

Subject: Treating Western Dwarf Mistletoe Infected Jeffrey and Ponderosa Pine
in the Cottonwood Burn (NE99-7)

To: District Ranger, Sierraville RD, Tahoe NF

In 1997 and 1999, I surveyed the Cottonwood Burn for Jeffrey pine (JP) and ponderosa pine (PP) infected with western dwarf mistletoe (DM). The goal of this survey was to locate DM infected pine that threatens to spread the disease to healthy pine regeneration. DM seed is capable of spreading sixty to one hundred feet (or more depending on the height of the infection, the wind, and the terrain) from plants living in the crowns of mature JP and PP. One mature pine with DM in the upper crown is capable of directly infecting about 0.75 acre of seedlings. Once DM becomes established in a stand of seedlings, it will gradually spread tree-to-tree and within the crowns of infected trees. In seedlings and saplings, DM can eventually infest the whole crown (including the bole) and kill the tree. By treating DM infected trees now, it is possible to reduce the impact this disease will have on the future forest.

About 1,200 acres in the Smithneck drainage were found to contain scattered DM infected pine which can be treated to protect the healthy 5-year-old pine seedlings that grew after the burn. Additionally, a few treatable pockets of DM infected PP and JP exist in other areas of the burn. Treatment can be in the form of pruning away the infected lower crown, killing the diseased trees by girdling or removal, or killing the susceptible pine seedlings within the spread distance of the DM infections.

Dwarf Mistletoe in other areas of the burn

DM infected pine were naturally sanitized from most of the 46,800 acres burned by the 1994 Cottonwood Fire when healthy as well as diseased trees were consumed. It was estimated in the Cottonwood Restoration DEIS (CRDEIS) that over 90 percent of the trees were killed on at

Unsupported Graphic Version: 311!

Caring for the Land and Serving People

Printed on Recycled Paper

Unsupported Graphic Version: 311!

least 70 percent of the area burned and 20 to 90 percent of the trees were killed on an additional 24 percent of the burn. Millions of healthy Jeffrey and ponderosa pine seedlings grew from seed which survived the heat of the fire. Numbers of pine seedlings range from none to over 80,000 per acre. In other words, the Cottonwood Fire controlled DM disease on more than 32,800 acres where the mature trees were killed and replaced by varying numbers of healthy pine seedlings. Some DM disease remains on the rest of the burn.

Incidental numbers of DM infected pine were found in mature, fully stocked or overstocked stands with either no pine seedlings or many suppressed pine seedlings under them. These are the areas that were either lightly burned or unburned by the Cottonwood Fire. It was estimated (CRDEIS) that these stands represent 6 percent (approximately 3,000 acres) of the burn. If there is interest in doing so, the DM infestation in these stands can be treated with future commercial thinning operations by removing the diseased pine and leaving the healthiest trees.

Other DM infected pine occur singly or in small groups at low elevations or on dry south- or west-facing slopes where very few pine seedlings grow. Many of these infected pine pose little or no threat to pine seedlings because they are separated by over 60 feet, which is the recognized distance DM seed can be propelled from a mature pine host in the absence of wind. If a seedling did become infected, the spread of the disease through the understory would be extremely slow because the seedlings are few and far between. DM control is not recommended for the dry sites which support very few mature trees and seedlings.

During the survey, I found most of the surviving mature pine to be free of DM infections on the balance (about 11,000 acres) of the burn. I also learned that many of the DM infected pine had few or no pine seedlings under them. Therefore, the DM treatment opportunities to protect new pine regeneration are quite limited in the Cottonwood Burn.

It needs to be mentioned that some DM brooms are occasionally used by birds and squirrels for nesting, and to a lesser extent, DM plants are fed upon. I am not aware of any species that are dependent on DM for survival. I observed very few DM brooms being used by wildlife during my survey. Large dense brooms that might make good habitat were usually located on isolated old growth PP or JP in areas that burned with low intensity and where few pine seedlings regenerated after the fire.

DM Treatment Opportunities

There are approximately 1,200 acres on the west side of Smithneck Creek, north and south of Alder Creek, which contain individual trees or groups of PP or JP with DM infections over healthy seedlings. Treating the DM infections now will keep the parasite from infecting healthy pine seedlings. If there is interest in protecting the pine regeneration from DM, it is important to treat the infected overstory soon. The pine seedlings in the Cottonwood Burn are five years old and some are almost four feet tall. Large seedlings make good targets for DM seed.

Now is the optimum time to treat the DM in the overstory to prevent spread to the understory because most of the pine seedlings are small and have a low probability of becoming infected with DM. This situation will change as the seedlings grow and become larger targets. Each tree or group of trees sanitized of DM can protect over 0.75 acres of healthy seedlings from becoming infected. In the long-term, considering the spread of DM from new infection centers in the understory, larger acreages are indirectly protected by timely DM treatment. Treatment can be in the form of pruning away the infected lower crown, killing the diseased trees by girdling or removal, or killing the susceptible pine seedlings within the spread distance of the DM infections.

John Kennedy, Sierraville RD Natural Resource Director, has expressed interest in treating some of the DM in the overstory pine in order to protect healthy pine seedlings. A suppression project is being proposed for the Alder Creek watershed on the east side of the Cottonwood burn. If you have any questions or suggestions, please contact me at (530) 252-6680 or by e-mail on the IBM at wwoodruf/r5,lassen.

/s/ Bill Woodruff

BILL WOODRUFF
Plant Pathologist, NE Cal FPM Service Area